

# Needs Analysis for the Development of Web-Based Interactive Learning Media Using Google Sites to Improve Learning Outcomes on Regular Straight Motion Material in Class XI in Bengkulu City High School

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## Abstract

The formulation of the problem of this study is whether it is necessary to analyze the development of web-based interactive learning media using google sites to improve learning outcomes on Regular Straight Motion material? The purpose of this study was to determine the analysis of the development of web-based interactive learning media using google sites to improve learning outcomes on the material of regular straight motion. The research method used in this research is descriptive qualitative, where literature studies, observations, interviews and questionnaires are used to collect data. The data analysis technique used was qualitative data analysis. SMA Negeri 1 Bengkulu City, SMA Negeri 3 Bengkulu City, and SMA Negeri 9 Bengkulu City are the research samples. The population taken is physics teachers and students of class X and XI IPA. This research was conducted from June to August 2023. Based on the results of observations, literature studies and data from interviews, students need interactive learning media such as google sites to help students improve learning outcomes. Therefore, it is necessary to analyze the development of interactive learning media using google sites that can help students improve physics learning outcomes and can play an active role and no longer have difficulty understanding physics learning.

## A. Introduction

The development of science from time to time supports the creation of new technologies that signify the progress of the times. The technology that is developing today has entered the digital era. In addition, Indonesia has utilized it in various sectors to facilitate work, including the education sector (Hapsari et al., 2022). New technologies can be used for research in teaching and learning. Digitization has offered many opportunities to collect data and understand the learning process using different channels and information formats (Rasa & Laherto, 2022).

The COVID-19 pandemic has affected many parties, this situation has gripped the world of education, the central and regional governments have issued policies to close all educational institutions. The goal is to prevent the spread of COVID-19 infection. The policy of many countries, including Indonesia, to stop all educational activities forces the government and related institutions to offer alternative educational processes to students who cannot complete the educational process in educational institutions (Adi et al., 2021). Students are invited to access learning resources on the SMP and SMA websites with an assessment system that can track learning independently, interactively, measurably and fun. The goal is for middle and high school students, to be able to think about symbolic thinking and understand something meaningful

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without real objects or even visuals (Rizaldi et al., 2019).

Teachers must get used to the use of information technology and online media in the classroom. Students return to learning by meeting face-to-face with teachers and learning partners through online media. The effectiveness of the teaching and learning process can be maximized. Likewise, parents will not feel burdened by studying at home. At this time parents must be able to accompany students to study at home, parents can manage time, and arrange a schedule of activities at home, and parents must prepare themselves for new jobs, especially as educators (Nur, 2022). The education program is offered for training sessions as an additional option for extension in the period 2022-2024. The government anticipates that the public education program will be reviewed in 2024 and will be evaluated during the learning recovery. "Independent Curriculum" is the new name of the education model that the Ministry of Education and Technology has officially sent to be used in its various education units. Educational program decisions include the 2013 curriculum, emergency and independent decisions. The Independent Learning Curriculum is a change and implementation of an emergency education program implemented in response to the impact of the Covid-19 pandemic. "Understanding Independent Learning" is a method that allows students and college students to choose topics that interest them (Pratikno et al., 2022).

Based on the results of observations and interviews conducted in three schools, namely SMA Negeri 1 Bengkulu City, SMA Negeri 3 Bengkulu City, SMA Negeri 9 Bengkulu City, it is found that during learning students lack interaction or interactive and learning becomes more boring because they still use LKS, printed books and power points. So that students find it difficult to understand physics concepts. Understanding concepts is very important in order to obtain satisfactory results in learning physics. Students in learning tend to prefer electronic teaching materials where the existence of this electronic teaching material can facilitate and make it more interactive in learning.

Misconceptions are errors in learning concepts in teaching materials that cause contradictions between the researcher's concept and the actual concept of the scientist (Febrina & Nada, 2021). Misconceptions are not only experienced in elementary schools, but also in high schools and universities. Frequent and persistent misconceptions, if not immediately corrected, will make it difficult for students to digest or understand scientific concepts and can also interfere with ongoing learning (Fadllan et al., 2019).

Learning outcomes are one of the factors that can determine learning success. The criteria for student learning success are measured by how much subject matter students can master. The learning process that is carried out varies with the success criteria based on how much students can use their brain potential to solve problems (Parasamya & Wahyuni, 2017). One of the materials that will be discussed is GLB. Regular straight motion (GLB) is motion on a straight trajectory without changing direction (not turning, not reversing direction) with a fixed speed at a certain interval of time. To determine the position of an object, measured from a specific reference point (Febrina & Nada, 2021). In learning, media is needed to facilitate students in accessing anywhere and anytime by using cellphones and website links that can help understand concepts in order to improve physics learning outcomes.

Learning media is any type of object that can be used in providing messages and lesson content that aims to stimulate thinking and attention in students in order to improve the learning process (Wahid, 2018). The use of learning media aims to facilitate students in learning the subject. There are various types of media, namely images, audio, video and graphics (Sakiah & Effendi, 2021). Web-based applications are now often used as a means of information and communication in the field of education. In the field of education, web-based applications are often used as a means of communication or learning. When developing web-based applications, it is necessary to follow development guidelines. The development of web-based applications must go through several usability guidelines to ensure that the purpose of the website can be achieved (Welda et al., 2020).

Google Sites is one of the media developed by Google. Google Sites Web itself works well as a learning tool because it is easy to use and does not use any coding in the process (Saputra et al., 2022). One of the programs created by Google is google sites. Utilization of google sites can help teachers overcome problems in delivering learning. According to Piaget in Aminah et al. (2021), this is because knowledge can be created and expanded through interaction with learning objects.

The research to be carried out is relevant to previous research, namely research from (Putri et al., 2021), that the use of google sites is very easy to use because without having to understand programming. Google sites web media is very interesting to use as learning media because it is easily accessible, makes it easy to understand the material, and the language used is easy to understand according to the level of thinking of

students. In previous studies only discussed student responses to web-based learning media google sites. So that the research that will be carried out using google sites web media needs to be re-examined, the research conducted by researchers is to develop google sites learning media to improve student learning outcomes.

Therefore, from some of the above problems, alternative solutions are needed in the learning process, one of which is by developing interesting learning media. So from the explanation of these problems, the problem formulation obtained is whether it is necessary to analyze the development of web-based interactive learning media using google sites to improve learning outcomes on the material of regular straight motion? The purpose of this study is to analyze the development of web-based interactive learning media using google sites to improve learning outcomes on the material of regular straight motion. So, the research conducted was entitled Analysis of the Needs for the Development of Web-Based Interactive Learning Media Using Google Sites to Improve Learning Outcomes on Regular Straight Motion Material for Class XI in Bengkulu City High School.

## B. Research Methods

The research conducted was descriptive qualitative. Methods used to analyze situations where the researcher acts as a measuring instrument are referred to as quantitative analysis methods. Descriptive research is a type of writing that examines the state of humans, an object, a condition, a system of thought, or a social movement in the present with the aim of making systematic, accurate, and reliable descriptions of existing facts. The purpose of descriptive qualitative research is to describe and illustrate existing phenomena, both natural and human-made, with greater emphasis on the characteristics, qualities, and relationships between activities (Utami et al., 2021).

In the research, the object or sample was obtained from three schools, namely SMA Negeri 1 Bengkulu City, SMA Negeri 3 Bengkulu City, and SMA Negeri 9 Bengkulu City. The population taken is physics teachers and students of class X and XI IPA. This research was conducted during June - August 2023. The research steps taken were data collection in the form of observations and interviews. Then, make a needs analysis questionnaire instrument sheet that is distributed to students. Followed by processing data, designing or designing the product being made. After designing the product, continue with the development of the product draft. The validity test is carried out by experts. The developed product is carried out field trials to students.

This research is an example of a type of quantitative research that is mostly descriptive. The qualitative method of conducting research is a technique for analyzing data in complex situations where the subject is a moving target and the research participant only acts as a key (Welda et al., 2020). Initial data collection methods in behavioral science include observation, interviews, questionnaires, and the use of databases. Previously published books, journals and papers as well as unpublished autobiographies and biographies are necessary steps to complete the research process and are fundamental research tools (Mazhar et al., 2021).

The types of qualitative data used are observation, interviews, and literature studies. Observation is a means of finding information about the object of research. Observation can be done directly or indirectly. Observation is a systematic, logical, objective, and rational process of observing real or simulated situations with the aim of achieving certain goals (Mousavi & Nasr, 2020). Interviews are a method of gathering information from respondents and participants in a clear and concise manner. Interviews can be structured, semi-structured, or unstructured. In a structured questionnaire, questions are taken from previous respondents and each respondent is given the same questions. Semi-structured interviews are more flexible as the researcher can ask questions other than those already answered. Unstructured interviews allow the researcher to ask unanswered questions, the researchers ask the questions they believe are most important for the research, without looking at the list of questions that have been analyzed. Document analysis is a data collection method used to obtain information about a work that has been disclosed in relation to a particular study. The researcher compiles various documents and collects the necessary information. The scope of document analysis is usually limited to reduce the amount of unnecessary and irrelevant information. It is recommended to establish a result control to achieve this goal (Mwita, 2022).

Observation sheets, interviews, and literature studies are used in this research to analyze the needs of the participants related to web-based interactive multimedia learning materials using Google Sites. The focus of this research will only develop interactive media for classroom learning using Google Sites to improve student performance in physics education.

### C. Result and Discussion

#### 1. Student Interview Results

From the results of interviews obtained from class XI, XII students totaling 15 students at SMAN 3 Bengkulu City, SMA Negeri 1 Bengkulu City, SMA Negeri 3 Bengkulu City and SMA Negeri 9 Bengkulu City, the first focus on facilities and infrastructure owned by schools, internet network facilities are available only in the teacher's room, lab, library. So that students usually use their respective provider cards in accessing the internet. In terms of physics laboratory equipment, students said it was adequate and had been managed optimally. Furthermore, in the learning process, all students prefer learning in the classroom, especially physics subjects. Students said they had difficulty in learning physics. However, in order to support learning, teachers sometimes also use projectors so that students are helped in understanding physics.

In the second focus on learning media, students prefer to learn using printed teaching materials because they are more helpful in learning. But, if there are other learning media they also really like it. Students like learning media that are organized neatly and systematically and are easy to understand. One of them is learning media that can be accessed via laptop or smartphone. Students also like it if the learning media has pictures and videos to support understanding the material. The learning media really needs to be developed in order to make students more active and enthusiastic in learning physics. In the learning process, teachers still often use the lecture method. In addition, students prefer the experimental method because it is more interesting and learning is not monotonous. Students said it is very important to improve learning outcomes by understanding concepts and interest in learning physics. In the third focus on school policy for physics class hours every week is 5 hours of lessons to be more optimal.

#### 2. Teacher Interview Results

Researchers also conducted interviews with 5 physics teachers at 3 State High Schools in Bengkulu City. From the results of these interviews obtained the results, namely the first focus regarding the facilities and infrastructure available at school, that for the wifi internet network is available but sometimes the internet access is sometimes smooth sometimes interference. Wifi facilities at school are usually also available in the teachers' room, library and laboratory. In addition, there is also a cellular network provider that is good and often used, namely telkomsel. Each of these schools already has a physics laboratory and the tools available are decent and adequate. However, laboratory management is not optimal because it is more often carried out in the classroom. In learning, teachers sometimes find active and less active students when learning. The difficulties in the teaching process in the classroom are in students' ability in counting and understanding physics concepts. In class sometimes teachers also use projectors to support and facilitate learning physics.

Furthermore, in the second focus on the process of learning activities, teachers more often use printed teaching materials such as library books, LKS and power points, although some are also supported by learning media such as videos. Teaching materials that sometimes support physics learning activities such as LKPD and phet simulation used for practicum. According to some physics teachers during interviews that learning media is very supportive in learning activities. With the existence of learning media that there are animated images, videos and other electronic things related to physics learning material more strongly support and facilitate in learning activities. If there is learning media it is very much needed and worth developing in order to encourage students to better understand learning physics. For learning methods that are often used lecture method but also use discussion methods and experiments. Teachers also always provide motivation so that students become more interested in learning physics. Because if students have an interest in learning physics, it will make it easier for students to understand concepts and can improve better learning outcomes. The teacher also said that students also have difficulty in motion kinematics material, one of which is regular straight motion. So this reinforces the need to develop interesting interactive learning media in physics learning. So as to make learning outcomes even better. The third focus is on school policy. That students are allowed to bring cellphones to the school environment but also provide rules in their use such as not being played during learning except with the permission of the teacher concerned. In addition, the policy regarding physics lesson hours is sufficient to meet the needs of students, namely 5 lesson hours each week.

So the research findings strengthen previous research that teachers and students need an interactive and interesting learning media for students to learn rather than using ordinary printed teaching materials. From the research study focused on concept understanding only. While in this study aims to improve physics learning outcomes. The implementation of this research is needed to be used as an interactive physics

learning media development using web google sites. Based on the results of observations and interviews from field studies, there are several causes of difficulties or limitations of the author, namely the limitations of respondents who make less to describe the results of the actual situation. So it is hoped that future researchers will choose more respondents so that the results obtained are more accurate.

#### D. Conclusion

Based on the results of observations and interviews with physics teachers and students from field studies in three schools, namely SMA Negeri 1 Bengkulu City, SMA Negeri 3 Bengkulu City and SMA Negeri 9 Bengkulu City, it can be concluded that in learning physics, interactive learning media is needed using web google sites in order to help interesting physics learning to improve learning outcomes on regular straight motion kinematics material.

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#### References

Adi, N. N. S., Oka, D. N., & Wati, N. M. S. (2021). Dampak Positif dan Negatif Pembelajaran Jarak Jauh di Masa Pandemi COVID-19. *Jurnal Ilmiah Pendidikan Dan Pembelajaran*, 5(1), 43–48. [Google Scholar](#)

Aminah, N., Amami, S., Wahyuni, I., Rosita, C. D., & Maharani, A. (2021). Pemanfaatan Teknologi Melalui Pelatihan Penggunaan Aplikasi Google Site bagi Guru MGMP Matematika SMP Kabupaten Cirebon. *Bima Abdi: Jurnal Pengabdian Masyarakat*, 1(1), 23–29. <https://doi.org/10.53299/bajpm.v1i1.35>

Fadllan, A., Prawira, W. Y., Arsini, & Hartono. (2019). Analysis of students' misconceptions on mechanics using three-tier diagnostic test and clinical interview. *Journal of Physics: Conference Series*, 1170(1), 1–5. <https://doi.org/10.1088/1742-6596/1170/1/012027>

Febrina, A. E., & Nada, A. Q. (2021). Identifikasi Miskonsepsi Siswa Pada Materi Gerak Lurus Beraturan (GLB) Dan Gerak Lurus Berubah Beraturan (GLBB). *Jurnal Kependidikan Betara*, 2(1), 43–50. [Google Scholar](#)

Hapsari, A. N., Risdianto, E., & Medriati, R. (2022). Analysis of Needs Response to the Development of Digital Comic on Straight Motion Kinematics Materials. *International Journal of E-Learning and Multimedia*, 1(2), 42–51. [Google Scholar](#)

Mazhar, S. A., Anjum, R., Anwar, A. I., & Khan, A. A. (2021). Methods of Data Collection: A Fundamental Tool of Research. *Journal of Integrated Community Health*, 10(1), 6–10. <https://doi.org/10.24321/2319.9113.202101>

Mousavi, H., & Nasr, M. D. (2020). A new decade for social changes Evaluating the Relationship between Overconfidence of Senior Managers and Abnormal Cash Fluctuations with respect to Financial Flexibility in Companies Listed in Tehran Stock Exchange. *Technium Social Sciences Journal*, 11, 210–225. [Google Scholar](#)

Mwita, K. M. (2022). Factors to consider when choosing data collection methods. *International Journal of Research in Business and Social Science*, 11(5), 532–538. <https://doi.org/10.20525/ijrbs.v11i5.1842>

Nur, Z. (2022). Efektivitas Pembelajaran Pasca Pandemi Covid-19 DI MTs Negeri 1 Makassar. *Jurnal Educandum*, 8(1), 121–128. [Google Scholar](#)

Parasamya, C. E., & Wahyuni, A. (2017). Upaya Peningkatan Hasil Belajar Fisika Siswa Melalui Penerapan Model Pembelajaran Problem Based Learning (PBL). *Jurnal Ilmiah Mahasiswa*, 2(1), 42–49. [Google Scholar](#)

Pratikno, Y., Hermawan, E., & Arifin, A. L. (2022). Human Resource ‘Kurikulum Merdeka’ from Design to Implementation in the School: What Worked and What not in Indonesian Education. *Jurnal Iqra’: Kajian Ilmu Pendidikan*, 7(1), 326–343. <https://doi.org/10.25217/ji.v7i1.1708>

Putri, N. K., Yuberti, & Hasanah, U. (2021). Pengembangan Media Pembelajaran Berbasis Web Google Sites Materi Hukum Newton Pada Gerak Benda. *Physics and Science Education Journal*, 1(3), 133–143. [Google Scholar](#)

Rasa, T., & Laherto, A. (2022). Young people’s technological images of the future: implications for science and technology education. *European Journal of Futures Research*, 10(4), 1–15. <https://doi.org/10.1186/s40309-022-00190-x>

Rizaldi, D. R., Makhrus, Muh., & Doyan, A. (2019). Analisis Tingkat Kemampuan Berpikir Kritis Dengan Model Perubahan Konseptual Ditinjau Dari Gaya Belajar Siswa. *Jurnal Pendidikan Fisika Dan Teknologi*, 5(1), 74–81. <https://doi.org/10.29303/jpft.v5i1.794>

Sakiah, N. A., & Effendi, K. N. S. (2021). Analisis Kebutuhan Multimedia Interaktif Berbasis PowerPoint Materi Aljabar Pada Pembelajaran Matematika SMP. *JP3M (Jurnal Penelitian Pendidikan Dan Pengajaran Matematika)*, 7(1), 39–48. <https://doi.org/10.37058/jp3m.v7i1.2623>

Saputra, H., Octaria, D., & Isroqmi, A. (2022). Pengembangan Media Pembelajaran Berbasis Web Google Sites Pada Materi Turunan Fungsi. *Jurnal Derivat*, 9(2), 123–135.

Utami, D. P., Melliani, D., Maolana, F. N., Marliyanti, F., & Hidayat, A. (2021). Iklim Organisasi Kelurahan dalam Perspektif Ekologi. *Jurnal Inovasi Penelitian*, 1(12), 2735–2742. [Google Scholar](#)

Wahid, A. (2018). Pentingnya Media Pembelajaran dalam Meningkatkan Prestasi Belajar. *Jurnal ISTIQRA’, 5(2)*.

Welda, Putra, D. M. D. U., & Dirgayusari, A. M. (2020). Usability Testing Website Dengan Menggunakan Metode System Usability Scale (Sus)s. *International Journal of Natural Science and Engineering*, 4(3), 152–161. <https://doi.org/10.23887/ijnse.v4i2.28864>

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